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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/277,582	03/26/1999	YASUO YOSHIOKA	51270-245599	3755

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PILLSBURY WINTHROP SHAW PITTMAN LLP  
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McLean, VA 22102

EXAMINER
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ARMSTRONG, ANGELA A

ART UNIT	PAPER NUMBER
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2626

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/277,582	<b>Applicant(s)</b> YOSHIOKA ET AL.	
	<b>Examiner</b> ANGELA A. ARMSTRONG	<b>Art Unit</b> 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-12,40,50 and 60-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-12,40,50,60-70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 27, 2008, has been entered.

### ***Response to Amendment***

This Office Action is in response to the amendment filed August 27, 2008, in which Applicant has amended claims 1, 40, 50, 60, 69, and 70. Currently claims 1, 5-12, 40, 50 and 60-70 are pending.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5-12, 40, 50 and 60-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Serra (US Patent No. 5,536,902).

4. Regarding claims 1, 40 and 50, Serra discloses an apparatus for converting an input voice signal into an output voice signal according to a target voice signal, the apparatus comprising: an

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input device (120) that provides the input voice signal composed of an original sinusoidal component and an original residual component other than the original sinusoidal component; an extracting device (20) that extracts original attribute data from at least the sinusoidal component of the input voice signal, the original attribute data being characteristic of the input voice signal and containing amplitude data representing an amplitude of the input voice signal in the form of static amplitude representing a basic variation of the amplitude and vibrato-like amplitude data representing a minute variation of the amplitude, superimposed on the basic variation of the amplitude, pitch data representing a pitch of the input voice signal and spectral shape data representing a spectral shape of the input voice signal (col. 10, lines 3-20; col. 12, lines 1-28; col.22, line 60 to col. 23, line 36; col. 23, lines 37-61); a synthesizing device (11) that synthesizes new attribute data based on both of the original attribute data derived from the input voice signal and target attribute data being characteristic of the target voice signal composed of a target sinusoidal component and a target residual component other than the sinusoidal component, the target attribute data being derived from at least the target sinusoidal component, and containing amplitude data representing an amplitude of the input voice signal in the form of static amplitude representing a basic variation of the amplitude and vibrato-like amplitude data representing a minute variation of the amplitude, superimposed on the basic variation of the amplitude, pitch data representing a pitch of the input voice signal and spectral shape data representing a spectral shape of the input voice signal (col. 10, lines 3-20; col. 12, lines 1-28; col.22, line 60 to col. 23, line 36; col. 23, lines 37-61); the synthesizing device selecting the static amplitude, the vibrato-like amplitude data, the pitch data and the spectral shape from either of the original attribute data and the target data so as to synthesize the new attribute data in the

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form of a combination of the selected static amplitude data, the selected vibrato-like amplitude data, the selected pitch data and the selected spectral shape data (SMS data processor (30) analyzes the original sound and performs line spectrum extraction to extract line spectra of sound partials and obtains frequency and amplitude data at col. 10, lines 3-20; the system performs vibrato analysis at col. 12, lines 30-37 and col. 21, line 59 to col. 22, line 49; pitch extraction data at col. 12, lines 1-28; spectral tilt analysis, which provides information regarding the spectral shape at col. 11, lines 10-29); and an output device (11) that operates based on the new attribute data and either of the original residual component and the target residual component for producing the output voice signal.

Regarding claim 5, Serra discloses the synthesizing device operates based on both of the original attribute data composed of a set of original attribute data elements and the target attribute data composed of another set of target attribute data elements in correspondence with one another to define each corresponding pair of the original attribute data element and the target attribute data element, such that the synthesizing device selects one of the original attribute data element and the target attribute data element from each corresponding pair for synthesizing the new attribute data composed of a set of new attribute data elements each selected from each corresponding pair (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 6, Serra discloses the synthesizing device operates based on both of the original attribute data composed of a set of original attribute data elements and the target attribute data composed of another set of target attribute data elements in correspondence with one another to define each corresponding pair of the original attribute data element and the target

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attribute data element, such that the synthesizing device interpolates with one another the original attribute data element and the target attribute data element of each corresponding pair for synthesizing the new attribute data composed of a set of new attribute data elements each interpolated from each corresponding pair (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 7, Serra discloses a peripheral device that provides the target attribute data containing pitch data representing a pitch of the target voice signal at a standard key, and a key control device that operates when a user key different than the standard key is designated to the input voice signal for adjusting the pitch data according to a difference between the standard key and the user key (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 8, Serra discloses a peripheral device that provides the target attribute data divided into a sequence of frames arranged at a standard tempo of the target voice signal, and a tempo control device that operates when a user tempo different than the standard tempo is designated to the input voice signal for adjusting the sequence of the frames of the target attribute data according to a difference between the standard tempo and the user tempo, thereby enabling the synthesizing device to synthesize the new attribute data based on both of the original attribute data and the target attribute data synchronously with each other at the user tempo designated to - the input voice signal (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 9, Serra discloses the tempo control device adjusts the sequence of the frames of the target attribute data according to the difference between the standard tempo and the

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user tempo, such that an additional frame of the target attribute data is filled into the sequence of the frames of the target attribute data by interpolation of the target attribute data so as to match with a sequence of frames of the original attribute data provided from the extracting device (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 10, Serra discloses a synchronizing device that compares the target attribute data provided in the form of a first sequence of frames with the original attribute data provided in the form of a second sequence of frames so as to detect a false frame that is present in the second sequence but is absent from the first sequence, and that selects a dummy frame occurring around the false frame in the first sequence so as to compensate for the false frame, thereby synchronizing the first sequence containing the dummy frame to the second sequence containing the false frame (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 11, Serra discloses the synthesizing device modifies the new attribute data so that the output device produces the output voice signal based on the modified new attribute data (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 12, Serra discloses the synthesizing device synthesizes additional attribute data in addition to the new attribute data so that the output device- concurrently produces the output voice signal based on the new attribute data and an additional voice signal based on the additional attribute data in a different pitch than that of the output voice signal (col.

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8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claims 60, 69, and 70, Serra discloses an apparatus for converting an input voice signal into an output voice signal according to a target voice signal, the apparatus comprising: an input device (120) that provides the input voice signal composed of an original sinusoidal component and an original residual component other than the original sinusoidal component; an extracting device (20) that extracts original attribute data from at least the sinusoidal component of the input voice signal, the original attribute data being characteristic of the input voice signal and containing amplitude data representing an amplitude of the input voice signal, pitch data representing a pitch of the input voice signal in the form of static pitch data representing a basic variation of the pitch superimposed on the basic variation of the pitch and vibrato-like pitch data representing a basic variation of the pitch superimposed on the basic variation of the pitch, and spectral shape data representing a spectral shape of the input voice signal (col. 10, lines 3-20; col. 12, lines 1-28; col.22, line 60 to col. 23, line 36; col. 23, lines 37-61); a synthesizing device (11) that synthesizes new attribute data based on both of the original attribute data derived from the input voice signal and target attribute data being characteristic of the target voice signal composed of a target sinusoidal component and a target residual component other than the sinusoidal component, the target attribute data being derived from at least the target sinusoidal component, and containing amplitude data representing an amplitude of the input voice signal, pitch data representing a pitch of the input voice signal in the form of static pitch data representing a basic variation of the pitch superimposed on the basic variation of the pitch and vibrato-like pitch data representing a basic variation of the pitch superimposed on



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the basic variation of the pitch, and spectral shape data representing a spectral shape of the input voice signal (col. 10, lines 3-20; col. 12, lines 1-28; col.22, line 60 to col. 23, line 36; col. 23, lines 37-61); the synthesizing device selecting the static amplitude, the vibrato-like amplitude data, the pitch data and the spectral shape from either of the original attribute data and the target data so as to synthesize the new attribute data in the form of a combination of the selected static amplitude data, the selected vibrato-like amplitude data, the selected pitch data and the selected spectral shape data (SMS data processor (30) analyzes the original sound and performs line spectrum extraction to extract line spectra of sound partials and obtains frequency and amplitude data at col. 10, lines 3-20; the system performs vibrato analysis at col. 12, lines 30-37 and col. 21, line 59 to col. 22, line 49; pitch extraction data at col. 12, lines 1-28; spectral tilt analysis, which provides information regarding the spectral shape at col. 11, lines 10-29); and an output device (11) that operates based on the new attribute data and either of the original residual component and the target residual component for producing the output voice signal.

Regarding claim 61, Serra discloses the synthesizing device operates based on both of the original attribute data composed of a set of original attribute data elements and the target attribute data composed of another set of target attribute data elements in correspondence with one another to define each corresponding pair of the original attribute data element and the target attribute data element, such that the synthesizing device selects one of the original attribute data element and the target attribute data element from each corresponding pair for synthesizing the new attribute data composed of a set of new attribute data elements each selected from each corresponding pair (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 62, Serra discloses the synthesizing device operates based on both of the original attribute data composed of a set of original attribute data elements and the target attribute data composed of another set of target attribute data elements in correspondence with one another to define each corresponding pair of the original attribute data element and the target attribute data element, such that the synthesizing device interpolates with one another the original attribute data element and the target attribute data element of each corresponding pair for synthesizing the new attribute data composed of a set of new attribute data elements each interpolated from each corresponding pair (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 63, Serra discloses a peripheral device that provides the target attribute data containing pitch data representing a pitch of the target voice signal at a standard key, and a key control device that operates when a user key different than the standard key is designated to the input voice signal for adjusting the pitch data according to a difference between the standard key and the user key (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 64, Serra discloses a peripheral device that provides the target attribute data divided into a sequence of frames arranged at a standard tempo of the target voice signal, and a tempo control device that operates when a user tempo different than the standard tempo is designated to the input voice signal for adjusting the sequence of the frames of the target attribute data according to a difference between the standard tempo and the user tempo, thereby enabling the synthesizing device to synthesize the new attribute data based on both of the original attribute data and the target attribute data synchronously with each other at the user

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tempo designated to - the input voice signal (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 65, Serra discloses the tempo control device adjusts the sequence of the frames of the target attribute data according to the difference between the standard tempo and the user tempo, such that an additional frame of the target attribute data is filled into the sequence of the frames of the target attribute data by interpolation of the target attribute data so as to match with a sequence of frames of the original attribute data provided from the extracting device (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 66, Serra discloses a synchronizing device that compares the target attribute data provided in the form of a first sequence of frames with the original attribute data provided in the form of a second sequence of frames so as to detect a false frame that is present in the second sequence but is absent from the first sequence, and that selects a dummy frame occurring around the false frame in the first sequence so as to compensate for the false frame, thereby synchronizing the first sequence containing the dummy frame to the second sequence containing the false frame (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 67, Serra discloses the synthesizing device modifies the new attribute data so that the output device produces the output voice signal based on the modified new attribute data (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

Regarding claim 68, Serra discloses the synthesizing device synthesizes additional attribute data in addition to the new attribute data so that the output device- concurrently produces the output voice signal based on the new attribute data and an additional voice signal based on the additional attribute data in a different pitch than that of the output voice signal (col. 8, line 39 to col. 19, line 20; col. 24, line 33 to col. 26, line 49; col. 31, line 29 to col. 37, line 53).

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 40, 50, 60, 69 and 70 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANGELA A. ARMSTRONG whose telephone number is (571)272-7598. The examiner can normally be reached on Monday-Thursday 11:30-8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Angela A Armstrong/  
Primary Examiner, Art Unit 2626